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Seeing Concrete America

*At Point Lookout, in the Blue Ridge
Mountains near Asheville, North Carolina*



Up where the rays of the rising sun first strike United States soil, this concrete pyramid overlooking Passamaquoddy Bay serves to mark the international boundary between New Brunswick, Canada and the Pine Tree State. Here, at the easternmost point in the United States, near Eastport, Me., a journey to see "Concrete America" may appropriately begin.

THIS IS THE CONCRETE AGE

CONCRETE today is a material with hundreds of uses—a material that has added to its long-established advantages of permanence, dignity, safety and economy, the additional virtues of beauty, grace and color.

From the photographs on the following pages, some idea may be gained of the possibilities of this versatile material. "Seeing Concrete America" takes the reader from the easternmost tip of Maine's rockbound coast to the Golden Gate, from Canada to the Gulf. Everywhere one finds concrete.

Among the pictures of concrete's uses, there are included a few photographs illustrating the manufacture of portland cement, the vital element in concrete. Since 1824, when this substance was invented by Joseph Aspdin and named

"portland" after a popular type of building stone quarried on the Isle of Portland, England, great advances have been made in the manufacturing process. The work is continuously under close quality control from start to finish.

Since 1902, cement makers have cooperated in maintaining the Portland Cement Association to carry on research, education and promotion in the field of concrete.

Thirty-one district offices of this Association, scattered throughout the country, are ready to aid the builder in using concrete to the best advantage, without charge.

PORTLAND CEMENT ASSOCIATION

*A National Organization to Improve
and Extend the Uses of Concrete*

Thirty-Three West Grand Avenue Chicago
OFFICES IN THIRTY-ONE CITIES



Concrete benches invite the guest to linger and enjoy the view of rocky summits at a New Hampshire resort.



The hum of the looms may be faintly heard across the water at Lowell, Mass. Through the use of concrete, dignity and beauty can readily be built into factories.

This concrete road passes near the monument commemorating the Battle of Bennington (Vermont), fought in Revolutionary days.





A stucco home—a protective concrete seawall—a concrete pier and shelter house swept by cooling breezes off Long Island Sound—all form a striking view near New Haven, Connecticut.



Center—The old Astor home, long one of the famous estates at Newport, R. I., has been modernized with portland cement stucco.

Circle—Occasionally oxen from the hills are still encountered on Connecticut's fine concrete roads.

Right—A concrete supply depot at the submarine base, New London, Conn.

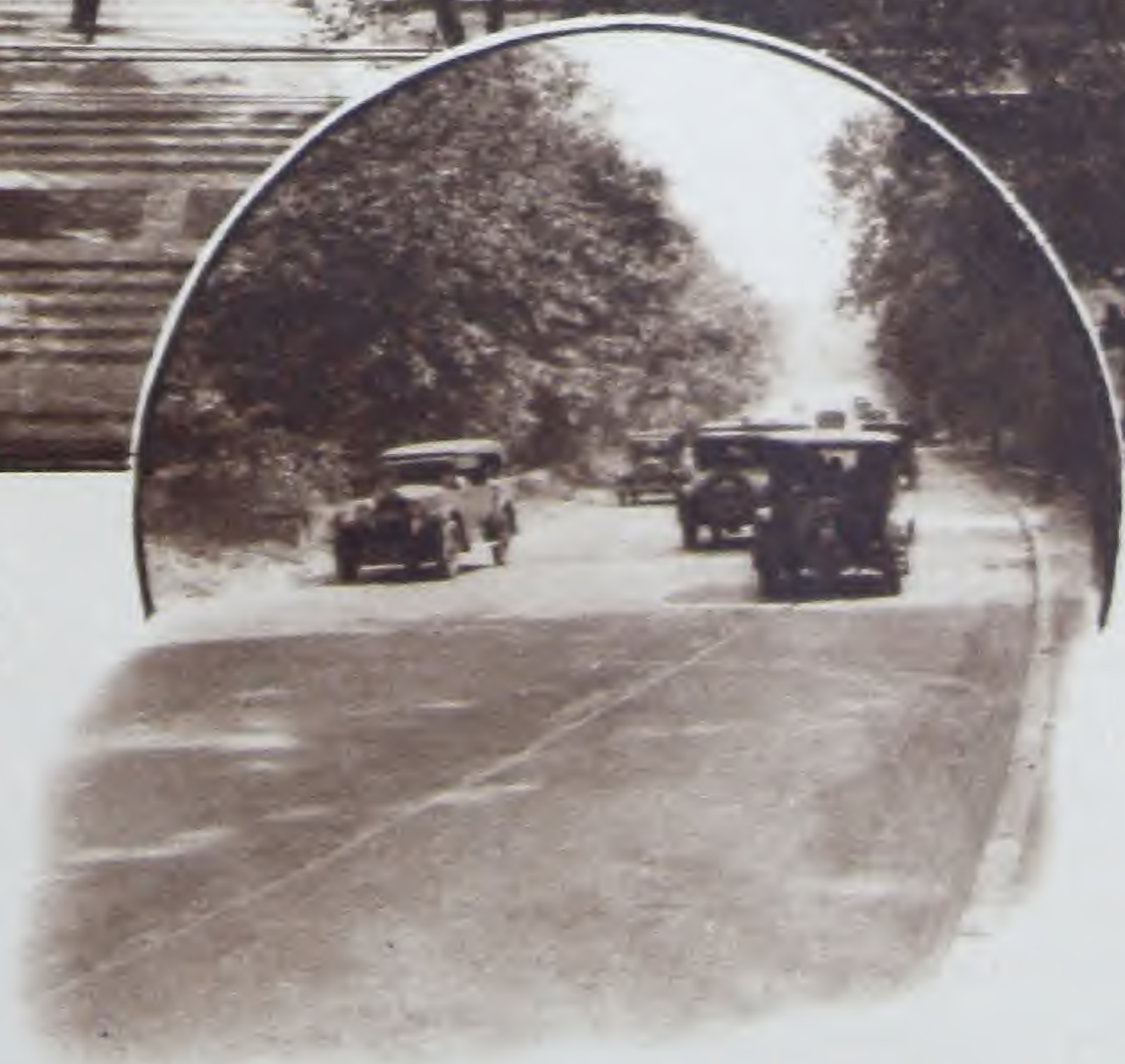




More than 70 years ago Horace Greeley built a concrete barn on his estate at Chappaqua, N.Y., one of the first concrete buildings in the United States. Later the Greeley mansion was destroyed by fire. The concrete barn was then remodeled and made into a beautiful residence, which is still the home of Greeley's daughter.



Westchester County's courthouse at White Plains, where many of New York's famous cases have been tried, is faced with concrete architectural stone.



Traffic rolls smoothly over this concrete four-lane section of the historic Albany Post Road, the main-traveled route between New York City and Albany.



Like many other residential towns in the Camden-Philadelphia district, Audubon, N. J., owes much of its trim and prosperous appearance to its network of concrete streets.



In the striking Washington Memorial Bridge, Wilmington, Del., has paid fitting tribute to her soldiers of all wars.

IN the Philadelphia area especially, the home-builder now finds many new ideas.

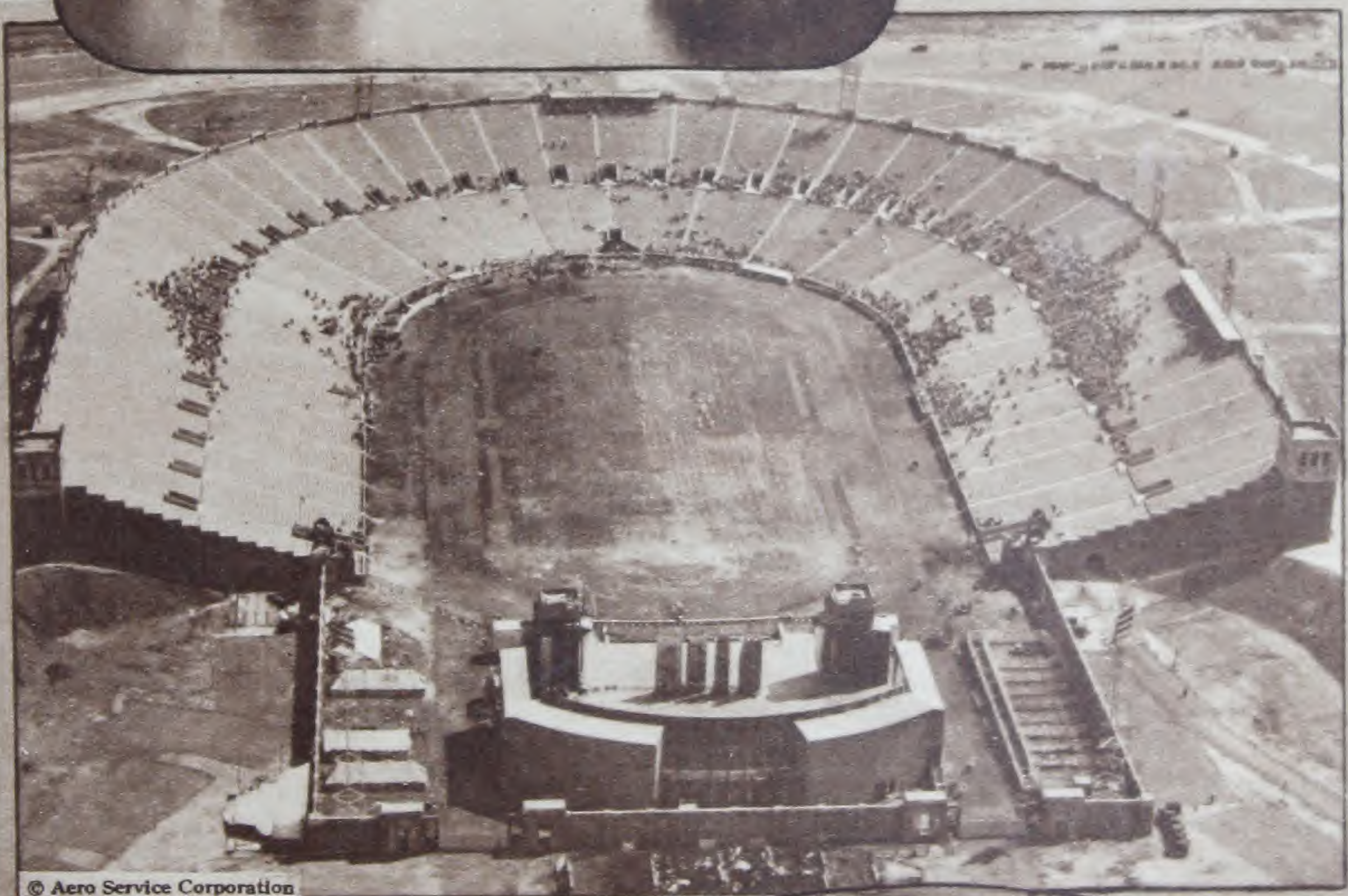
The freedom of the suburbs and the flexibility of the motor car are drawing thousands away from the crowded centers. And for their homes, these thousands are choosing with an eye for lasting value, safety, beauty and comfort.

In cities like Los Angeles and Minneapolis and Miami, nine out of every ten are choosing a home finished with portland cement stucco. Many are using hollow concrete units stuccoed for the walls, and concrete tile for the roof.

Such a house, when given a concrete first floor, is as near fireproof as can be had. Yet its first cost is little more than less durable construction, and its final cost much less.



Beautiful concrete bridges, smooth-riding pavements and varied scenes make Pennsylvania a favored state with motorists. Estimates show that the good roads of the state are returning to motorists a net profit of \$22,000,000 a year through lessened operating expenses.



© Aero Service Corporation

Philadelphia's great concrete stadium, built for the Sesqui-Centennial, will seat millions of people during the years to come at notable athletic events and public occasions.

In this coal mine in Western Pennsylvania, a mixture of cement, sand and water—called gunite—was sprayed by compressed air over the rock walls and ceiling to prevent their disintegration.





After its old elevators at Locust Point, Baltimore, had been struck by lightning and burned, the B. & O. R. R. Company built this huge concrete elevator. Here six vessels can load at once with grain for export.



Right—Exposed aggregate surfaces of many delicate colors make this cloistered walk at the Franciscan Monastery, Washington, D. C., a notable exhibit of color and texture in concrete work.

Circle—The motorist in West Virginia soon finds evidence of the state's prominence as a coal producer. This entrance is at one of the Consolidation Coal Co.'s mines.

Left—The charm of Washington as a city of beautiful homes and streets is being maintained through the building of many stucco houses and concrete pavements. For the past two years, only concrete has been used for new paving in the nation's capital.





Completion of this concrete trestle across the vast swamp of the Santee River, South Carolina, reduced the distance between coast cities by fifty miles.

Hundreds of miles of concrete road like this, with cotton fields and negro cabins to add the picturesque, and frequent modern cities, make travel a pleasure in North Carolina.



This spreading horse-chestnut tree is the sole survivor of the thirteen planted by George Washington at Fredericksburg, Va., in honor of the thirteen colonies. It gives promise of standing for another century now that it has been strengthened by the ton-and-a-half of concrete placed in the cavities in its trunk and branches through the generosity of the Davey Tree Surgeons.

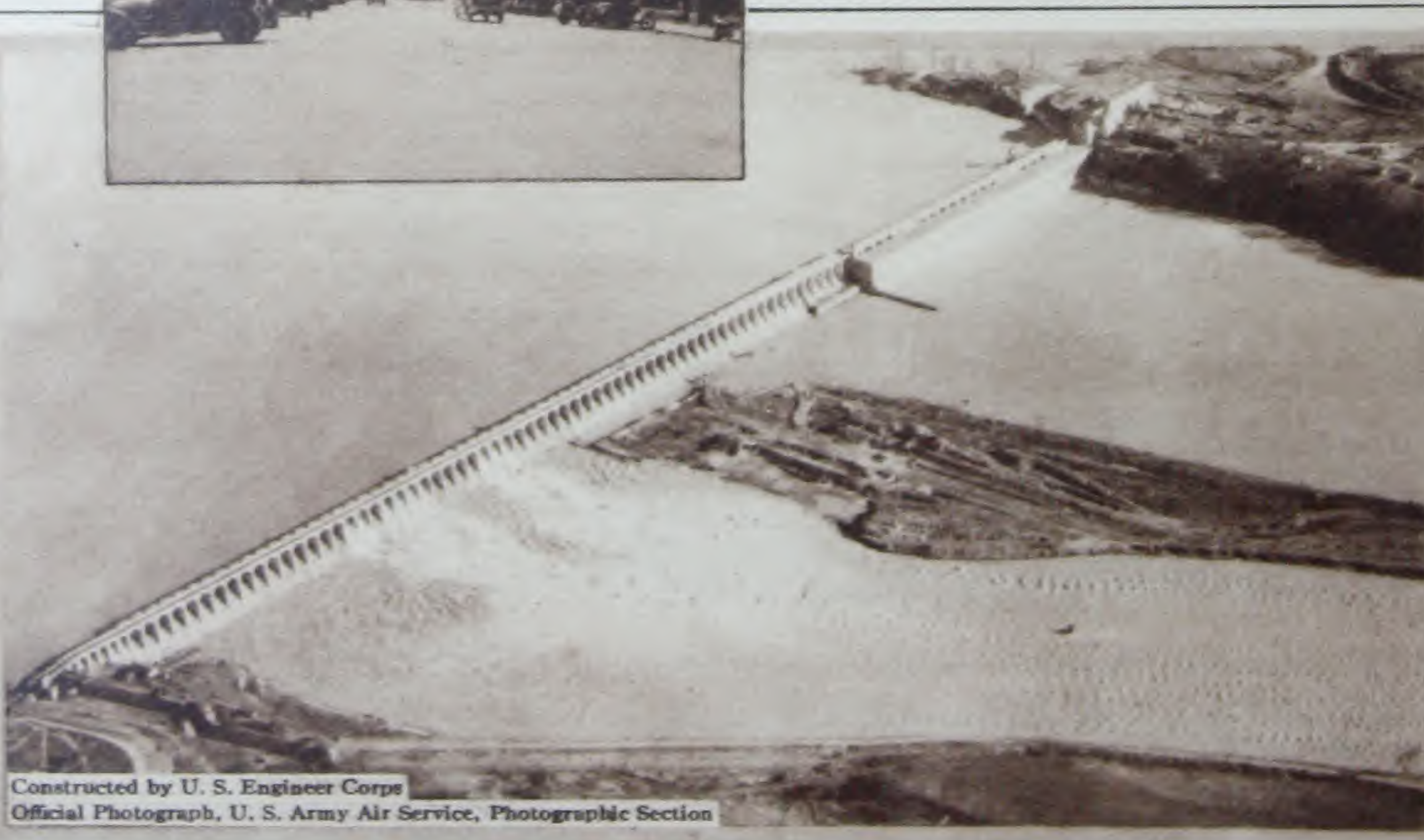




Above— Savannah is doubly interesting to the visitor because it has retained the atmosphere of the Old South through its period of modernization. It now has many concrete streets.

Top— Georgia, long famous for its "peaches", also grows apples — big red ones. This concrete apple was recently unveiled at Cornelia.

Left— In Macon, Georgia, concrete streets are standard and have been ever since 1914.



Constructed by U. S. Engineer Corps
Official Photograph, U. S. Army Air Service, Photographic Section

A great white wall, the Wilson Dam, now stretches across the Tennessee River at Muscle

Shoals, near Sheffield, Ala. Ultimately more than 600,000 horse power will be developed there.



Unchecked torrents sweep over the crest of the spillway section of the Wilson Dam when the

Tennessee is in flood. Nearly a mile long, this is the largest concrete dam in the world.



To obtain the silica and alumina needed in the raw mix, many cement plants operate shale quarries such as this. Other materials containing these ingredients in the right proportions may also be utilized.



The process of manufacturing portland cement for use with sand, stone and water in making concrete structures, starts in the quarry, where solid limestone is blasted down often 100,000 tons at a time. Lime is the principal ingredient of the raw cement mix.



Rocks from the quarry are crushed before they are fed into grinding mills. The closeup shows the interior of the centrifugal mill seen above in which huge rolls revolving inside a fixed ring powder the rock fragments.





Above—Cotton is king at Greenville, Miss., where this concrete-paved river bank facilitates shipment on the stern-wheelers of the Mississippi.

Left—For 14 miles, this concrete sea wall stretches along the Mississippi coast to prevent harm from storms on the Gulf of Mexico.



Nowhere has the value of well-built concrete masonry homes been more strikingly proved than at Coral Gables, Fla. Hundreds of homes

like this weathered without injury the recent terrific hurricane that leveled whole towns of less substantial construction.



People of the New World may now see the Athenian Parthenon—not the Parthenon of old, but a reproduction exact in detail, even to

color. The skillful use of concrete made possible this replica, which serves Nashville, Tenn., as a museum.



A fairy-like farm of green and white is the home of Bagenbaggage, Boot to Boot and Bubbling Over. Stucco and monolithic concrete have

been extensively used by Col. E. R. Bradley on his nationally known estate in the Blue Grass Country, near Lexington, Ky.



An additional storage capacity of 35,000,000 gallons was given the Cincinnati Waterworks system by the construction of this concrete reservoir in the Eastern Hills district.

SINCE the first concrete pavement in the United States was laid in Bellefontaine, Ohio, nearly thirty-five years ago, cities and towns everywhere have adopted concrete for paving.

More than three thousand communities have used concrete and are continuing to use it for street construction. Yardage equivalent to eleven thousand miles of streets thirty feet wide is now in service. Many large cities such as Washington, Chicago, Seattle, and Los Angeles have hundreds of blocks of it.

Maintenance cost of concrete has proved insignificant, even where traffic is heaviest. Its firm, rigid, unyielding surface always remains intact. The attractive light gray color dresses up a street, while the safety assured by its non-skid surface in all kinds of weather finds especial favor with motorists.

That is why more than two thousand miles of concrete streets are laid every year, bringing to public officials and property owners the satisfaction that comes from getting the best that money can buy.

Ever since 1893, this concrete pavement at Bellefontaine, O., has been on the job. It is part of the oldest concrete street paving in the U. S.



Coal trains on the Pennsylvania Railroad approach the docks at Sandusky, Ohio, over a fill held in place by this concrete crib wall. This is but one of hundreds of ways in which the railroads are using "Concrete for Permanence."



Graceful concrete arches support the trolley wires on the electrified section near Detroit, of Henry Ford's railroad, the Detroit, Toledo and Ironton.

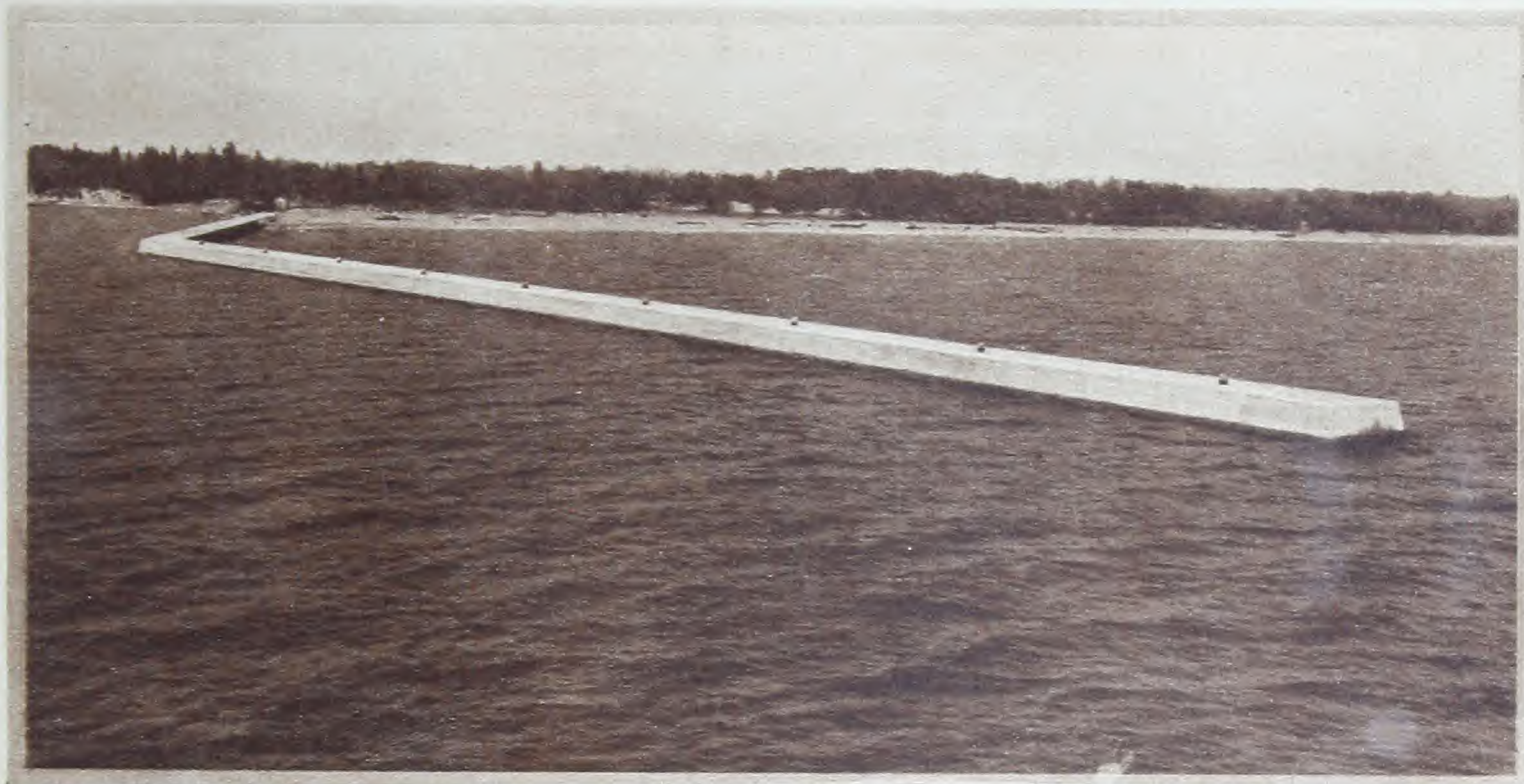


This Michigan pyramid is not a monument but is a hard-working shaft head house built of concrete. It is at Ishpeming, and belongs to the Cleveland Cliffs Iron Co.



A forecast of the highways of tomorrow is given by the Detroit-Pontiac road which consists of two parallel strips of concrete, each 44 feet

wide. Even on Sundays and holidays, traffic flows along smoothly and freely with four lines of cars traveling in each direction.



Port Maitland, near Yarmouth, Nova Scotia, is protecting its shore line with this concrete

breakwater which extends out into the waters of the Atlantic Ocean.



This forest of concrete columns is in the new warehouse of the Canadian Rail and Harbour

Terminals, Ltd., at Toronto, Canada. Even the sprinkler tanks on the roof are made of concrete.



Powdered coal, oil or gas is used for firing the cement kilns. Before it is pulverized, the coal must be dried in rotating tubes like this.



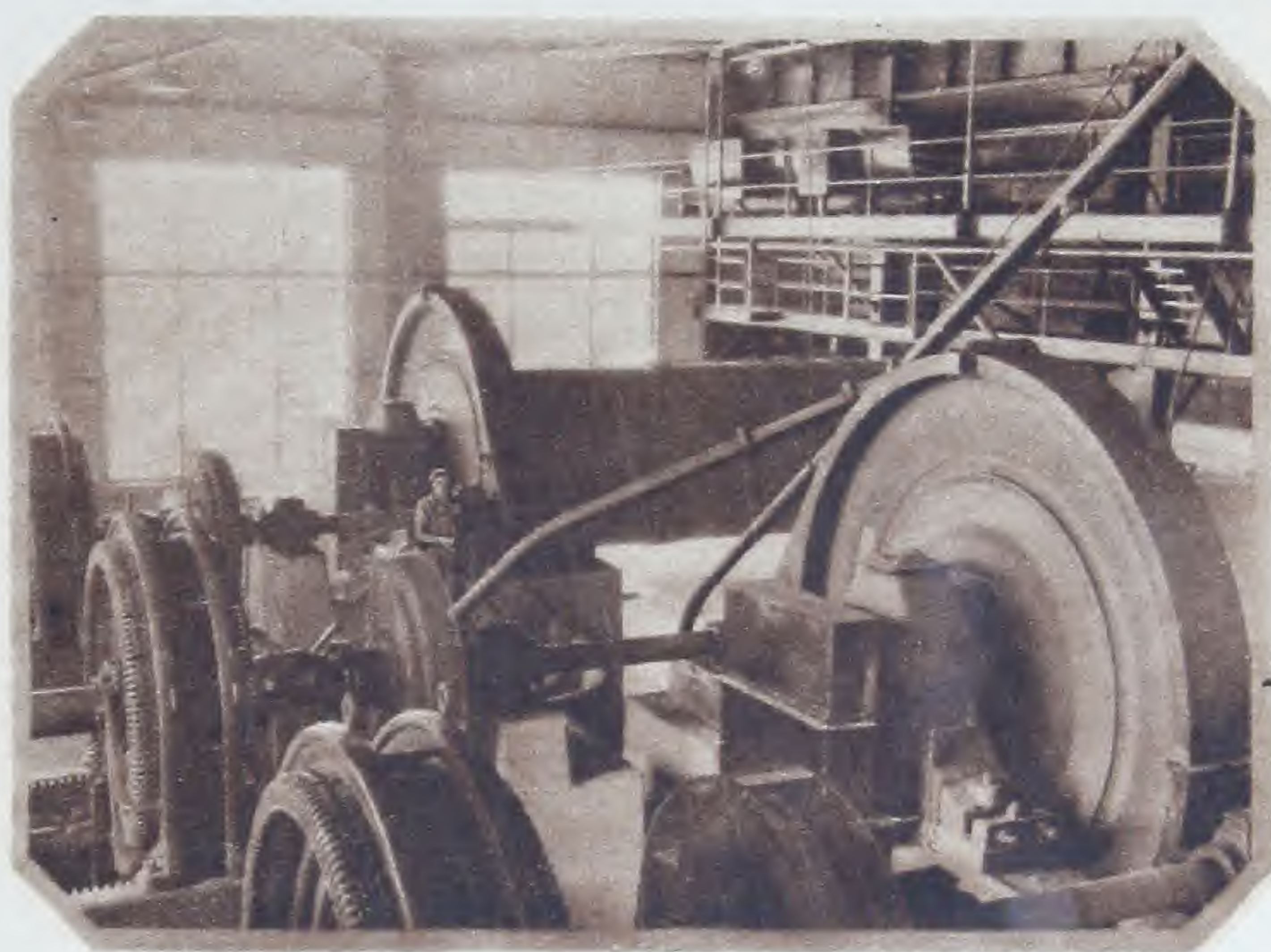
This crater-like black hole is merely the inside of a rotary cement kiln that has been allowed to cool for repairs. Clinker is seen at the right.

OF all the 80 operations of certain kinds in the land cement, the most special kilns at a temperature of

In these leviathans of clinker coolers beneath a physical change takes place remains to cool the white control the hardening, sand and rock in order to

Below is seen a plant that produces magic powder daily.





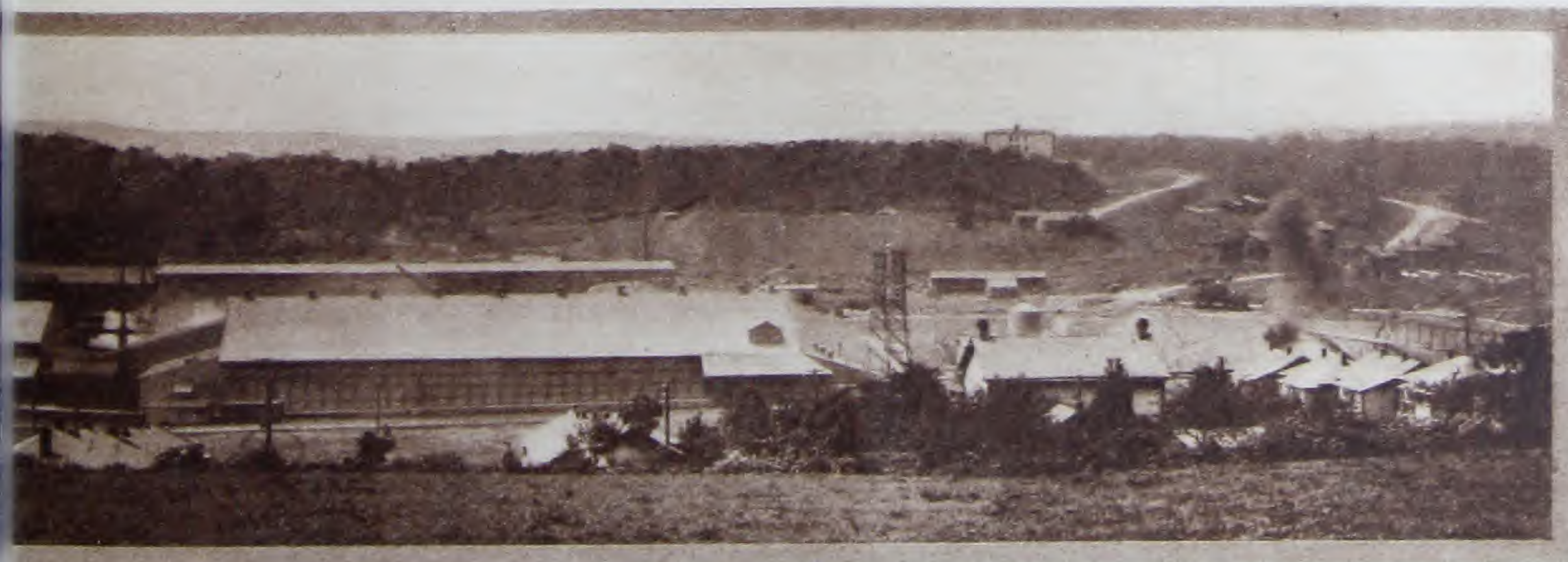
The raw cement mixture before burning and the clinker from the kilns are pulverized finer than flour, in huge mills like these.

involved in transforming rock
magic powder men call port-
ar is the burning in the rotary
2700 degrees Fahrenheit.

stry, shown above with the
a complete chemical and phy-
raw mix. After this it only
clinker, add a little gypsum to
er it, and mix with water,
e "stone that you can mold."
turns out a trainload of this



Coal used for kiln fuel is powdered so that it will burn like gas, and then is sent to the kilns by these compressed air pumps.



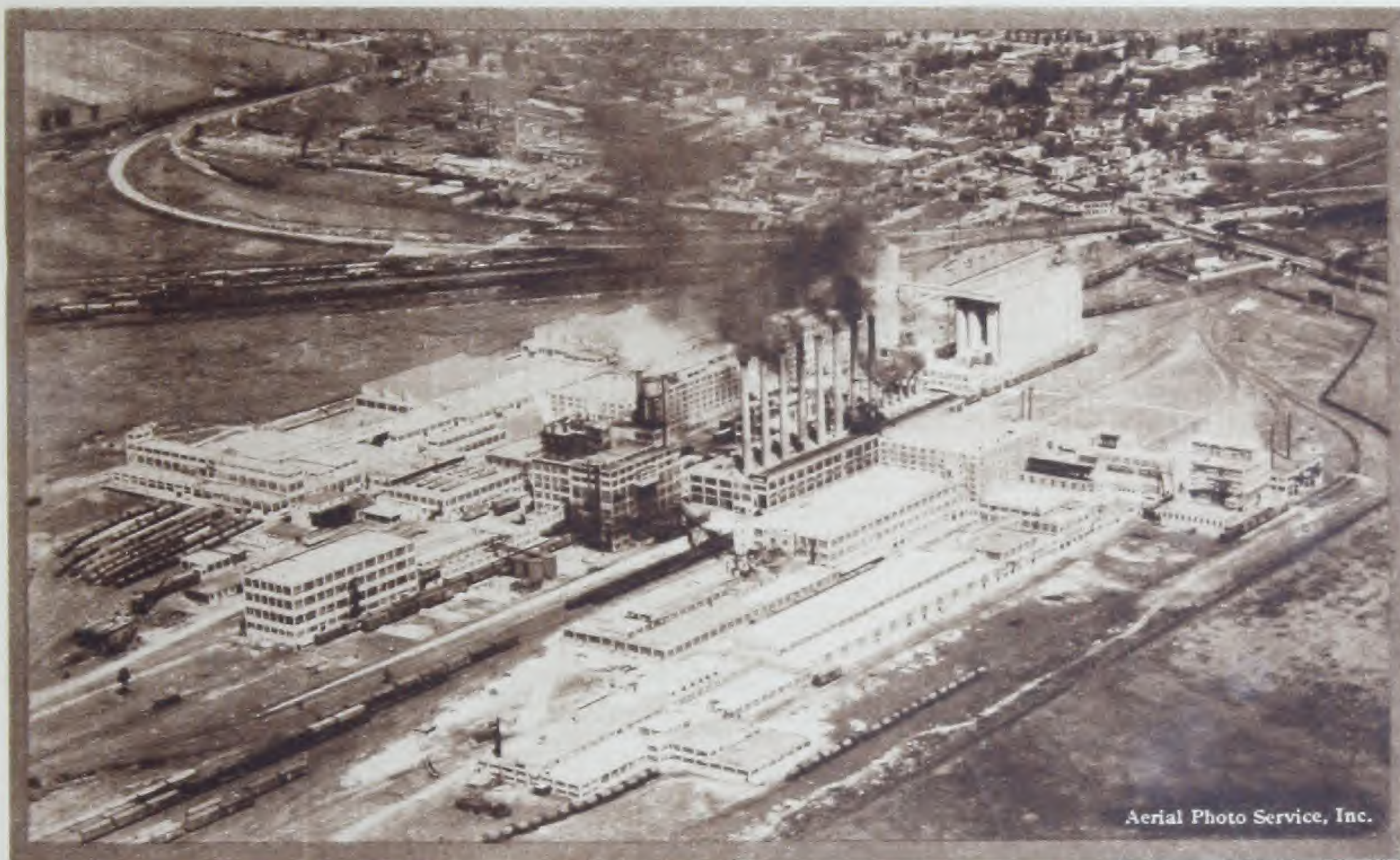


Permanent beauty in outdoor adornments may be easily molded in concrete, as witness this attractive flower urn in Garfield Park, Indianapolis.

These concrete jugs are on their way to be planted up to their necks in Indiana soil. They are really battery wells for operating automatic railroad signals.



Paving railroad crossings with removable concrete slabs like these on the Big Four Railroad in Indiana, is a welcome way of smoothing the path of the motorist.

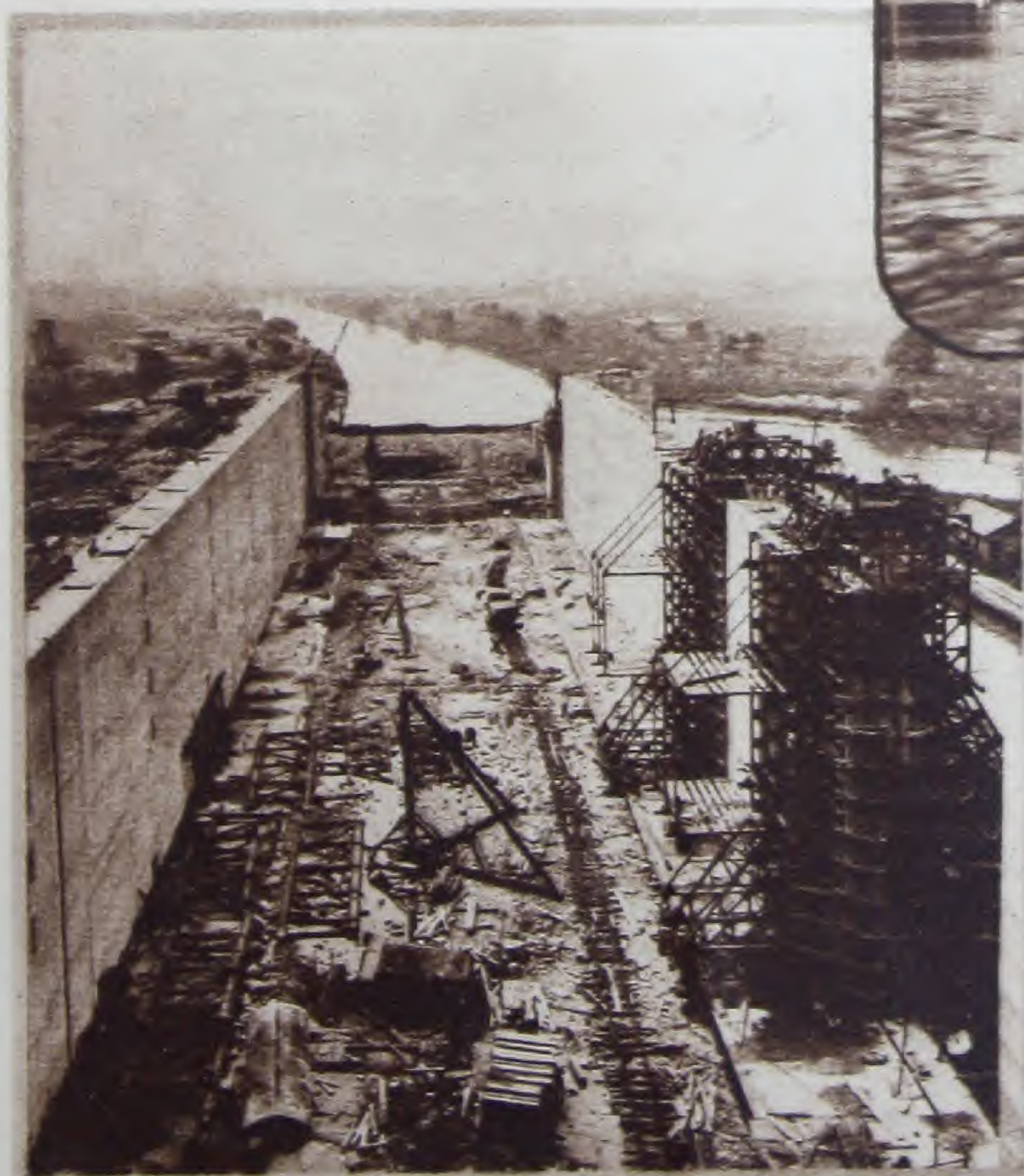


Aerial Photo Service, Inc.

The all-concrete plant of the Corn Products Refining Company at Argo, Illinois, typifies modern industry, with its efficient, well-lighted and attractive factory buildings.



A concrete-shored yacht harbor such as this in Jackson Park, Chicago, affords an excellent landing place as well as a beautiful promenade for park visitors.



A lift of 41 feet—higher than any in the Panama Canal—distinguishes this lock on the Lakes-to-Gulf Waterway, at Lockport, Ill. The waterway is designed for barge traffic and when completed will link the Gulf and Great Lakes through the Mississippi River.

One secret of the great contentment of Wisconsin's cows becomes evident to the traveler through that state's prosperous dairy region. Everywhere one sees concrete silos that furnish green feed throughout the long, cold winter.



The permanence and great strength of concrete made it especially suitable for the mammoth ore dock of the Great Northern Railway near Superior, Wisconsin. Here an ore vessel is filled with 8000 tons of ore in two hours or less.



Above—The Cappel Memorial Bridge, spanning the Mississippi River at Minneapolis, has a center span 400 feet long. This is the longest concrete arch in the United States.

Right—Grain elevators of concrete like this one in North Dakota are commonly insured for their contents only—the structure itself cannot burn.

Below—Passengers in this fleet of busses are enjoying a run along the picturesque shores of Lake Pepin near Red Wing, Minn. Concrete highways have aided greatly in the rapid extension of motor lines which today thread the country.





© H. M. Anschutz

The dam across the Mississippi at Keokuk, Iowa, is a massive concrete monolith nearly a mile long. A

million tons of coal are saved each year by converting the energy of the river into electrical power.



R. J. Mills, Sioux City Tribune

Below—The largest earthen dam in the world, near Belle Fourche, S. D., is faced with concrete. It forms a lake with a shore line of 53 miles, which waters 100,000 acres of fine sugar beet land.



Above—Concrete buildings and a concrete floor covering fifteen acres make the Sioux City (Iowa) Stock Yards sanitary and firesafe. This is the second largest hog market in the world.

THE profits from paved roads are becoming widely recognized, especially at shipping centers like the Sioux City Stock Yards where more cattle are received by truck than at any other market.

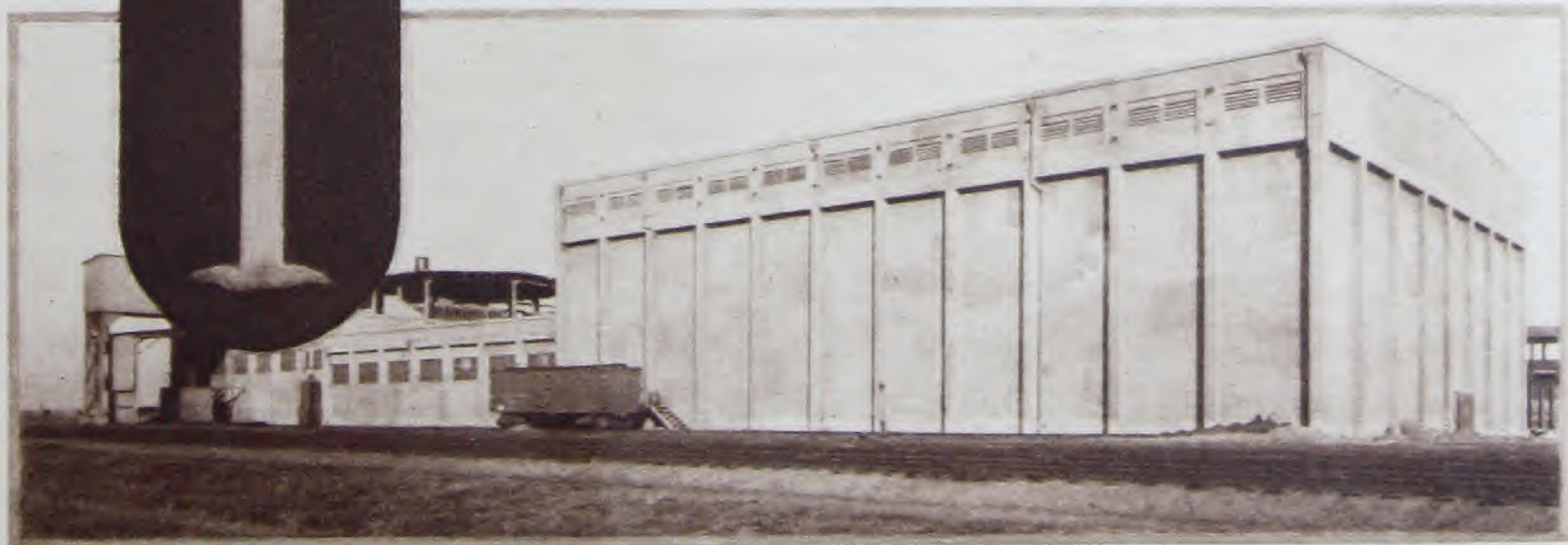
In Maricopa County, Arizona, transportation companies, private firms, farmers and motorists have found that their 330 miles of concrete pavement are saving users more than \$1,000,000 yearly after meeting all charges for maintenance, interest and bond retirement. Shipping costs have been reduced a third.



The York Rite Temple at Wichita, Kansas, is a striking example of the artistic effects obtainable with concrete architectural stone. Note the wealth of sculptured detail in the above panel of the frieze.



Durability, economy and safety characterize this modern concrete stadium at Creighton University, Omaha, Nebraska.



Perishable produce en route from the West Coast over the Union Pacific is iced at concrete ice

houses like this one in North Platte, Nebraska, said to be the largest in the country.



Above—Arctic environment for polar bears is reproduced in concrete at Forest Park, St. Louis, Mo.

Right—Near Booneville, Mo.—A stretch of the thousand-mile ribbon of concrete which joins Green Bay, Wisconsin and Topeka, Kans. The Missouri River is seen in the distance.



Tulsa, Oklahoma now receives sparkling mountain water from the Ozarks through the longest reinforced concrete pipe line on this continent.

JUST as sculptors long have molded with clay, so now are architects and builders molding concrete into beautiful and expressive structures—from distinctive homes to monumental public buildings.

Among the examples of this form of architectural expression, a group at Louisiana State University has earned especial prominence. One of this group is shown on the next page.

Here eleven new buildings were constructed of reinforced concrete and all were finished with portland cement stucco—a plastic medium offering the widest range of texture and color.

Outstanding results are also being obtained with concrete architectural stone, a most adaptable material.



Dignity, simplicity and uniformity of design characterize the new reinforced concrete buildings of Louisiana State University. John J. Earley,

architectural sculptor, designed and executed the exquisite portland cement stucco finishes, which so enhance the beauty of these buildings.



Courtesy McKenale Construction Co., Builders

Above—Fort Worth, Texas, relies upon this concrete sewage disposal plant to purify its waste, conserving the health of its citizens.

Right—“King Cotton” rides to market over concrete highways near Marion, Arkansas.

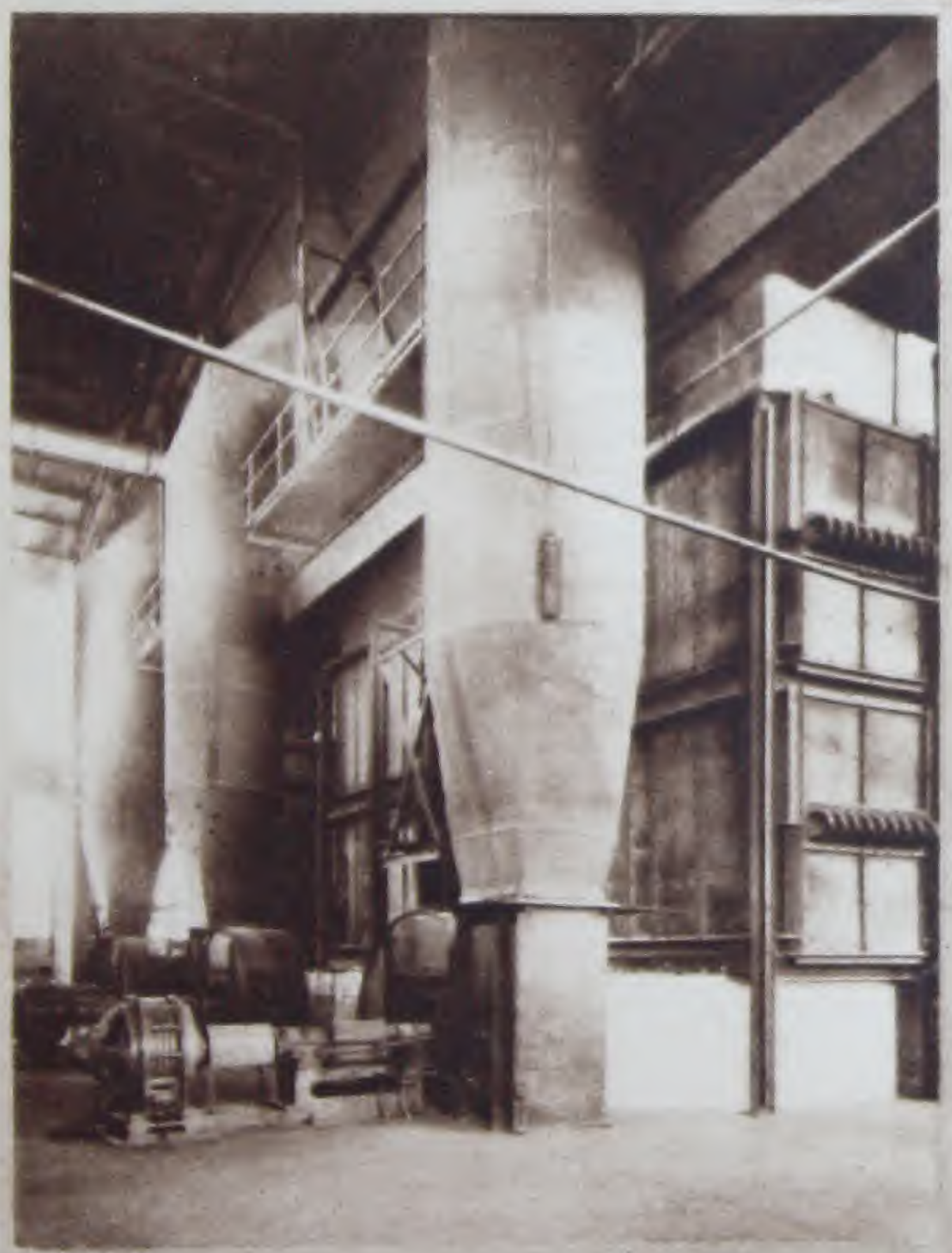


Welcome refuge from the soaring mercury of a hot summer's day is found in this concrete swimming pool

at Highland Park near Dallas, Texas. Little tots have great fun in the wading basin beyond.

Right—The coal pile at a portland cement plant of average size shrinks three hundred tons a day. The cement industry is the fourth largest manufacturing user of coal.

Below—By installing an elaborate system of waste heat boilers, cement makers can utilize the hot gases from the kilns to generate power.



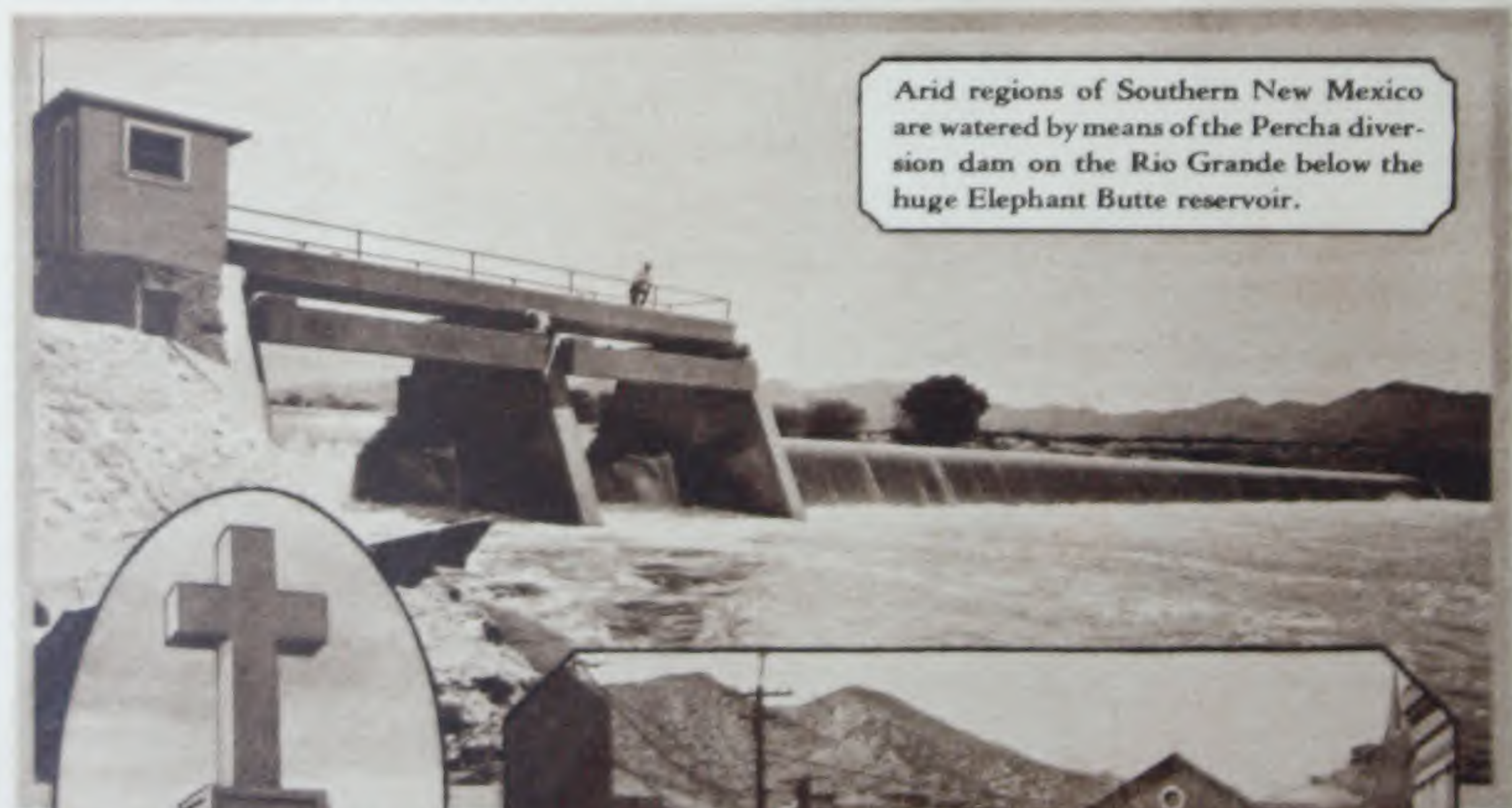
Above—Nowadays cement may leave the mill by truck over concrete roads, although the great bulk still goes by rail. The portland cement industry is the fourth largest railroad shipper of manufactured goods.

Left—Any one of these big motors, used for turning the grinding mills in a cement plant, is powerful enough to operate an ordinary machine shop.



The East Side High School, Salt Lake City, Utah, is built of reinforced concrete and concrete brick.

Firesafety and a maximum of daylight attend concrete construction.



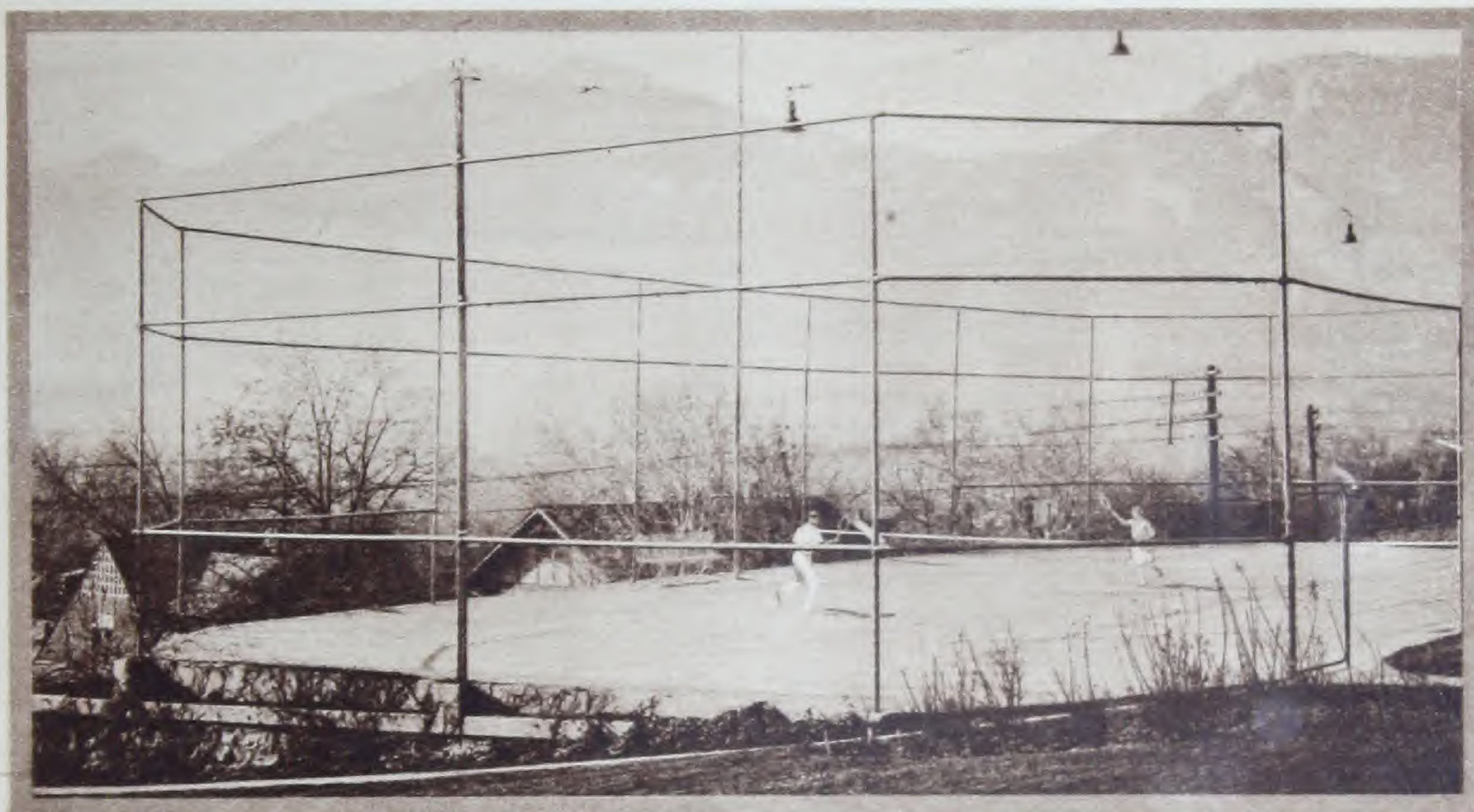
Arid regions of Southern New Mexico are watered by means of the Percha diversion dam on the Rio Grande below the huge Elephant Butte reservoir.



Cross of the Martyrs, erected in memory of twenty-one Spanish priests massacred during an Indian uprising at Santa Fe, New Mexico in 1680.



A hint of the old West may still be seen on the modern concrete streets of Bisbee, Arizona. These burros bring down copper from points otherwise inaccessible.



The great national interest in tennis is demanding all-weather concrete courts. Here is one in Boulder, Colorado.



A concrete viaduct carries the highway along a cliff in Golden Gate Canyon, Yellowstone National Park, Wyoming.

THE American spirit of play is today exerting itself as never before. Millions watch baseball and football matches from concrete stadiums; other millions find recreation in motoring over splendid concrete roads. Throngs indulge in swimming; as many more besiege the golf links and tennis courts.

In all these, concrete is playing an important part, as players and spectators demand and receive new and modern places of play.

Excellent examples are found in the clean-cut, permanent athletic structures seen everywhere.

Such improvements are giving excellent returns in health and character building, and often yield a good financial reward as well.



Top—This huge concrete spillway controls the flow of water on the Little Bitterroot River. It is part of the great Flathead Irrigation Project in Montana.

Center—224,000 acres of choice Boise valley land are supplied with water by means of the Arrowrock Dam 22 miles above Boise, Idaho. This is the highest concrete dam in the world.

Left—The tallest concrete smokestack in America, at Trail, British Columbia, carries the zinc smelter fumes 409 feet into the air. This gigantic structure was completed in 170 working days.

The Astoria Column towering 150 feet into the air is constructed entirely of concrete. It serves as a tribute to John Jacob Astor, Lewis and Clark, Captain Gray and other pioneers who laid the foundations for the Pacific Empire. A spiral band ten feet wide encircles the tower from base to summit and is artfully carved with scenes depicting historical events in the development of Oregon.



Above—Dignity, permanence and beauty characterize the Chamber of Commerce building at Seattle, Washington. This is of reinforced concrete, faced with concrete architectural stone. *Right*—A far-flung panorama of mountain and water unfolds before the motorist on concrete Chuckanut Drive near Bellingham, Washington.





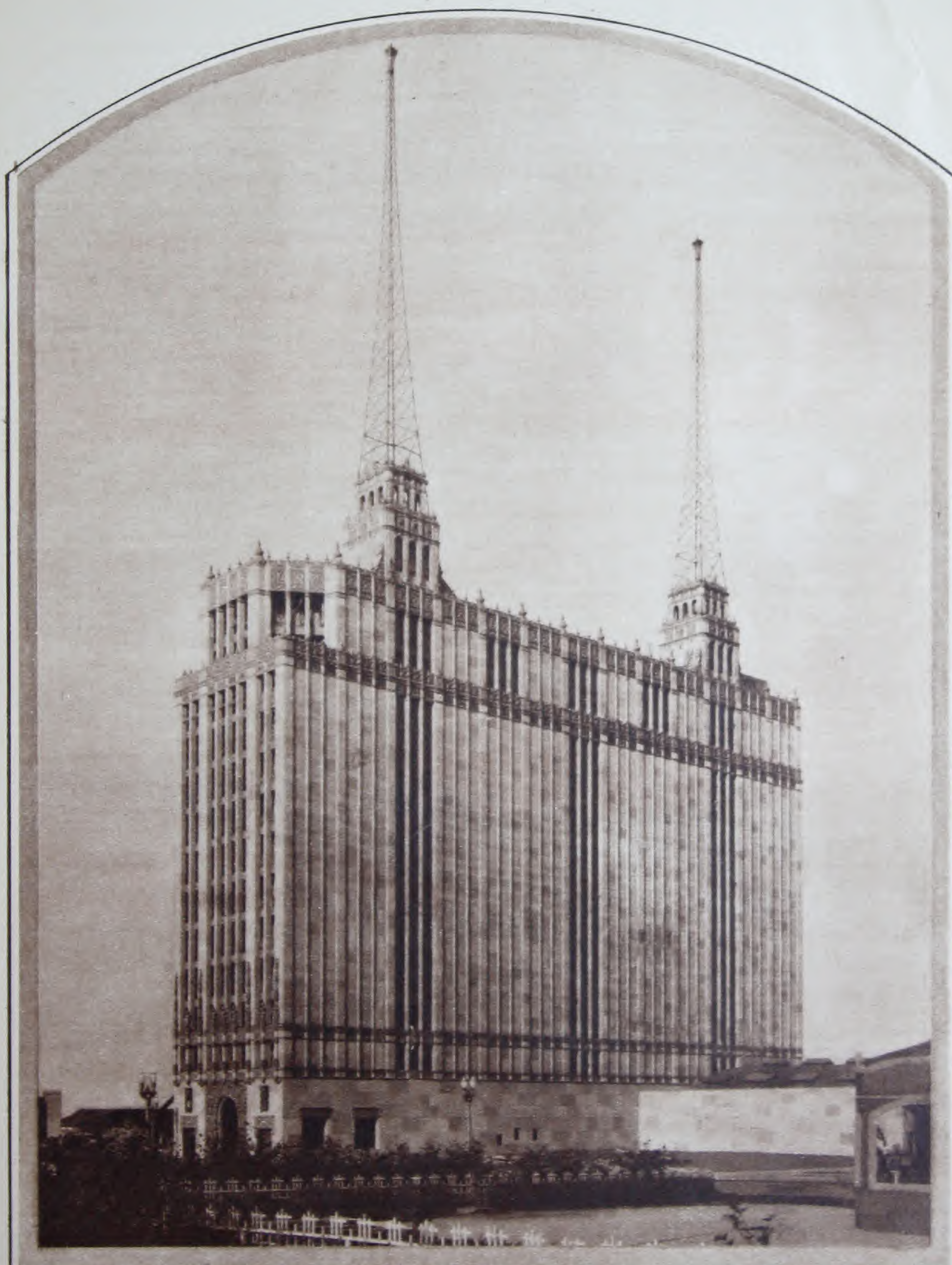
Above—Near Verdi, Nevada, the highway crosses the Truckee River on this graceful bridge.

Left—These concrete bridge piers, higher than a 20-story building, were constructed to carry trains on the Yosemite Valley Railroad across a reservoir in California.



Here is San Francisco's ocean promenade—the Great Highway. On the left are the famous Seal

Rocks and in the center is Cliff House. Beyond lie the waters of the Golden Gate.



The concrete Hollywood Terminal building in Los Angeles marks a new order of archi-

tecture in industry and illustrates the massive grandeur attainable in commercial structures.



Concrete throughout except for the Spanish tile on the dome, this formal entrance to Valhalla Memorial Park at Burbank, California combines delicacy and beauty with permanence and offers pleasing contrast between the intricate designs around the arches and the substantial simplicity of the walls. The exterior is of concrete architectural stone.

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